BRUHATH BANGALORE MAHANAGARA PALIKE
Byatarayanapura Division

Name of the work: Comprehensive Development for Roads and Drains In Ward No. 7 And 8 Under CMC & TMC Grants, Kodigehalli Sub-Division, Yelahanka Zone, Byatarayanapura Division.

Fourth RA Bill
Test Reports

TEJUS
CONSULTANTS

No. TC / BBMP / RI / BYT-PMC / 282 / 17 – 18

Date: 02/05/18

To
The Executive Engineer,
Bruhat Bangalore Mahanagara Palike,
Byatarayanapura Division,
No. 2152/20, Defence Colony,
Sahakara Nagar, Bangalore – 92

Dear Sir

Sub: **Fourth and Part Bill for the work of Name of Work (as per sanctioned estimate): Comprehensive Development for Roads and Drains In Ward No. 7 And 8 Under CMC & TMC Grants, Kodigehalli Sub-Division, Yelahanka Zone, Byatarayanapura Division.**

In reference to the above subject, this is to bring to your kind notice that we have scrutinized the **Fourth and Part Bill** submitted by M/s.Ram and Company Sri.C.R Girish No12,Patel Pillegowda layout,Ramchandrapura,Bangalore-560013, towards the above said work and arrived at an amount of **Rs. 7758670.81/-(Rupees Seventy Seven Lakhs Fifty Eight Thousand Six Hundred Seventy and Eighty One Paise Only**). The work has been completed satisfactorily.

This is for your kind information.

Thank you and assuring you the best of our Services at all the times

TEJUS CONSULTANTS

For Tejus Consultants
(Nischal M)

TEJUS CONSULTANTS
No. 58, 3rd main, 6th Cross, 1st Stage KHB Colony, Basaveshwaranagar, Bangalore - 560079, O : +91 80 23287532, tejusconsultants@gmail.com

BRUHATH BANGALORE MAHANAGARA PALIKE
Byatarayanapura Division

Name of the work: Improvements to Roads and Drains at Yashodha Nagar,Jakkur Plantation and Surrounding Areas in Ward No 7 Thanisandra, Byatarayanapura Sub Divison.

TEJUS
CONSULTANTS

PRECAST SLAB (CORE) TEST REPORT

Client	:	Bruhat Bangalore Mahanagara Palike
Contractor	:	M/s.Ram and Company
Name of Work	:	Improvements to Roads and Drains at Yashodha Nagar,Jakkur Plantation and Surrounding Areas in Ward No 7 Thanisandra, Byatarayanapura Sub Divison
No.of Sample Tested	:	3
Date of Testing	:	16.03.18
Techinical Reference	:	IS:516-1959 (Reaffirmed 1999), SP-24:1983.
Grade of Concrete	:	M_{20} - 100mm thick

Sl. No.	Dia of Core D (mm)	Height of Core H (mm)	Core Wt (Kg)	Density of Core (kg / m^3)	H / D	Correction factor (Based on H/D)	Failure Load (kN)	Core Strength (N/mm^2)	Correction Factor for the Dia. (Strength of the Core x 1.08)	Corrected Cylinder Compressive Strength (N/mm^2)	Equivalent Cube Compressive Strength (N/mm^2)
1	50.00	85.00	0.406	2432.64	1.70	0.960	39.30	20.02	21.62	20.75	25.94
2	50.00	85.00	0.404	2420.65	1.70	0.960	39.22	19.97	21.57	20.71	25.89
3	50.00	85.00	0.408	2444.62	1.70	0.960	38.80	19.76	21.34	20.49	25.61

Note:
1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.

Assistant Executive Engineer
Kodigehalli Sub Division
Bruhat Bangalore Mahanagara Palike
Bangalore - 560 092

AE(WZ)

Assistant Executive Engineer
Kodigehalli Sub Division
Bruhat Bangalore Mahanagara Palike
Bangalore - 560 092

TEJUS CONSULTANTS

Consultant's Representative

TEJUS
CONSULTANTS

PRECAST SLAB (CORE) TEST REPORT

Client	:	Bruhat Bangalore Mahanagara Palike
Contractor	:	M/s.Ram and Company
Name of Work	:	Improvements to Roads and Drains at Yashodha Nagar,Jakkur Plantation and Surrounding Areas in Ward No 7 Thanisandra, Byatarayanapura Sub Divison
No.of Sample Tested	:	3
Date of Testing	:	16.03.18
Techinical Reference	:	IS:516-1959 (Reaffirmed 1999), SP-24:1983.
Grade of Concrete	:	M_{20} . 100mm thick

Sl. No.	Dia of Core D (mm)	Height of Core H (mm)	Core Wt (Kg)	Density of Core (kg / m^3)	H / D	Correction factor (Based on H/D)	Failure Load (kN)	Core Strength (N/mm^2)	Correction Factor for the Dia. (Strength of the Core x 1.08)	Corrected Cylinder Compressive Strength (N/mm^2)	Equivalent Cube Compressive Strength (N/mm^2)
1	50.00	85.00	0.410	2456.60	1.70	0.960	39.60	20.17	21.78	20.91	26.14
2	50.00	85.00	0.406	2432.64	1.70	0.960	39.50	20.12	21.73	20.86	26.07
3	50.00	85.00	0.412	2468.59	1.70	0.960	39.60	20.17	21.78	20.91	26.14

Note:

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RAM & COMPANY

AE(HQ)

Assistant Executive Engineer
Kodigenahalli Sub Division
Bruhat Bangalore Mahanagara Palike
Bangalore - 560 092

TEJUS CONSULTANTS

Consultant's Representative

TEJUS
CONSULTANTS

PAVER BLOCK(COBBLE STONE) TEST REPORT

Client	:	Bruhat Bangalore Mahanagara Palike
Contractor	:	M/s.Ram and Company
Name of Work	:	Improvements to Roads and Drains at Yashodha Nagar,Jakkur Plantation and Surrounding Areas in Ward No 7 Thanisandra, Byatarayanapura Sub Divison
No.of Sample Tested	:	3
Date of Testing	:	**24.03.18**
Techinical Reference	:	IS:516-1959 (Reaffirmed 1999), SP-24:1983.

Sl. No.	Details	FLEXURAL STRENGTH, fcr in Mpa	Charecteristic Copressive strength fck in N/mm^2	Average Charecteristic Copressive strength fck in N/mm^2
1	Paver Block	3.70	27.80	27.77
2	Paver Block	3.66	27.60	
3	Paver Block	3.73	27.90	

Results: Copressive strength of Paver Block(N/mm^2)=	**27.77**

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported reported within 90 days from the date of testing.

Assistant Executive Engineer
Kodigehalli Sub Division
Bruhat Bangalore Mahanagara Palike
Bangalore - 560 092

AE(WL)

TEJUS
CONSULTANTS

PAVER BLOCK(COBBLE STONE) TEST REPORT

Client	:	Bruhat Bangalore Mahanagara Palike
Contractor	:	M/s.Ram and Company
Name of Work	:	Improvements to Roads and Drains at Yashodha Nagar,Jakkur Plantation and Surrounding Areas in Ward No 7 Thanisandra, Byatarayanapura Sub Divison
No.of Sample Tested	:	3
Date of Testing	:	**24.03.18**
Techinical Reference	:	IS:516-1959 (Reaffirmed 1999), SP-24:1983.

Sl. No.	Details	FLEXURAL STRENGTH, fcr in N/mm^2	Charecteristic Copressive strength fck in N/mm^2	Average Charecteristic Copressive strength fck in N/mm^2
1	Paver Block	3.69	27.85	27.97
2	Paver Block	3.70	27.90	
3	Paver Block	3.71	28.15	

Results: Copressive strength of Paver Block(N/mm^2)=	**27.97**

Note:

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M/s. RAM & COMPANY

Assistant Executive Engineer
Kodigehalli Sub Division
Bruhat Bangalore Mahanagara Palike
Bangalore

AE(WZ)

Agent

TEJUS CONSULTANTS

Project	Improvements to Roads and Drains at Yashodha Nagar,Jakkur Plantation and Surrounding Areas in Ward No 7 Thanisandra, Byatarayanapura Sub Divison.
Client	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	M/s Tejus Consultants
Contractor	M/S Ram and Company, Engineers & Contractors.

AGGREGATE IMPACT VALUE
(IS: 2386 Part - 4)

Proposed Use	WMM	**Date of Sampling**	**14.04.18**
Sample Location	**At plant**	**Date of Testing**	**14.04.18**

Sl. No.	Description		Test No. 1	Test No. 2	Test No. 3	Spec Limit (%)
1	Wt. of stone pieces (dry) passing IS Sieve 12.5mm but retained in IS sieve 10mm (gm)	(Wa)	379.00	376.00	383.00	
2	Wt. of the fraction retained in IS sieve 2.36mm after the impact test (gm)	(Wb)	296.00	283.00	302.00	
3	Wt. of the fraction passed in IS sieve 2.36mm after the impact test (gm)	(Wc)	83.00	93.00	81.00	
4	Aggregate Impact Value (%)	(Wc/Wa)* 100	21.90	24.73	21.15	
5	Average Aggregate impact value	(%)	22.59			Max - 30 %

Remarks : Satisfactory / Not Satisfactory

Assistant Executive Engineer
Kodigehalli Sub Division
Bruhat Bangalore Mahanagara Palike
Bangalore - 560 092

AE(W)

Consultant's Representative

Assistant Executive Engineer
Kodigehalli Sub Division
Bruhat Bangalore Mahanagara Palike
Bangalore - 560 092

Project	Improvements to Roads and Drains at Yashodha Nagar,Jakkur Plantation and Surrounding Areas in Ward No 7 Thanisandra, Byatarayanapura Sub Divison.
Client	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	M/s Tejus Consultants
Contractor	M/S Ram and Company, Engineers & Contractors.

FLAKINESS AND ELONGATION INDICES (IS 2386, PART 1)

Type of Material	WMM	**Proposed Use**	**WMM**
Sample Location	At plant	**Date of Sampling**	**14.04.18**
		Date of Testing	**14.04.18**

Size of aggregate		**Flakiness Index**		**Elongation Index**	
Passing through IS sieve, mm	**Retained on IS sieve, mm**	**Total wt. of aggregate retained on sieves (A) gms.**	**Wt. of aggregate passing from Flakiness gauge (B) gms**	**Wt. of aggregate retained on Flakiness gauge (C) gms**	**Wt. of aggregate retained on Elongation gauge after retained on Flakiness gauge(D)gms**
63.0	50.0	0	0	0	0
50.0	40.0	0	0	0	0
40.0	31.5	0	0	0	0
31.5	25.0	0	0	0	0
25.0	20.0	0	0	0	0
20.0	16.0	851	74	777	86
16.0	12.5	1111	121	990	131
12.5	10.0	742	80	662	52
10.0	6.3	559	76	483	43
Total		**3263**	**351**	**2912**	**312**

Note: Minimum 200 Pcs should be taken on each fraction of test

Flakiness Index(%):	10.76
Elongation Index(%):	10.71
Combined FI+EL (%)	21.47

Assistant Executive Engineer
Kodigehalli Sub Division
Bruhat Bangalore Mahanagara Palike
Bangalore - 560 092

AE(WM)

Consultant's Representative

Name of Work	:	Improvements to Roads and Drains at Yashodha Nagar,Jakkur Plantation and Surrounding Areas in Ward No 7 Thanisandra, Byatarayanapura Sub Divison.
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	M/S Ram and Company, Engineers & Contractors.
Date of Testing	:	14.04.2018
Type of Mix	:	WMM
Sample I/D	:	WMM 1

GRADATION FOR WMM
(As per MORT&H 400-11)

Sample Location:	At plant	**Date of Sampling:**	14.04.2018
		Date of testing:	14.04.2018
Type of material & Purpose:	WMM	**Oven Dry Wt.(gms):**	10000.0

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
53	0	0	0.00	100.00	100.00
45	588	588	5.88	94.12	95-100
22.4	2128	2716	27.16	72.84	60-80
11.2	1822	4538	45.38	54.62	40-60
4.75	1862.0	6400	64.00	36.00	25-40
2.36	1344.0	7744	77.44	22.56	15-30
0.6	788.0	8532	85.32	14.68	8.0-22.0
0.075	922.0	9454	94.54	5.46	0-8
Pan	546.0				
Total	10000.0				

M/s RAM & COMPANY

Assistant Executive Engineer
Kodigehalli Sub Division
Bruhat Bangalore Mahanagara Palike
Bangalore - 560 092

AE(W)

Consultant's Representative

TEJUS CONSULTANTS

Assistant Executive Engineer
Kodigehalli Sub Division
Bruhat Bangalore Mahanagara Palike
Bangalore - 560 092

TEJUS
CONSULTANTS

Project	Improvements to Roads and Drains at Yashodha Nagar,Jakkur Plantation and Surrounding Areas in Ward No 7 Thanisandra, Byatarayanapura Sub Divison.	
Client	BRUHAT BANGALORE MAHANAGARA PALIKE	
Consultant	M/s Tejus Consultants	
Contractor	M/S Ram and Company, Engineers & Contractors.	
Field Dry Density test by Sand Replacement Method (As per IS 2720 (Part 28)		
	Date:	**16.04.18**
Layer no. or level	WMM I layer	
Depth of hole	250mm	
Field density:	1	2
Wt. of wet material from hole (Ww) gms.	6256	6269
Wt. of sand+cylinder before pouring (w1) gms.	14000	14000
Wt. of sand+cylinder after pouring (w2) gms.	9553	9579
Wt. of sand in cone (w3) gms.	870	870
Wt. of sand in hole (w4)=(w1-w2-w3) gms.	3577	3551
Bulk density of sand (γs)gm/cc	1.32	1.32
Bulk density of material(i.e. wt. of the wet material) (γb)=(Ww/w4*(γs))gm/cc	2.31	2.33
Moisture meter reading(moisture content)	12.10	12.10
Result		
FDD(Wt.of the dry material)=(100γb/100+mc)gm/cc	2.06	2.08
MDD	2.10	2.10
OMC	13.00%	13.00%
% compaction obtained	98.07	98.99
% compaction required	98%	98%

RAM & COMPANY

Assistant Executive Engineer
Kodigehalli Sub Division
Bruhat Bangalore Mahanagara Palike
Bangalore - 560 092

AE(W7)

Assistant Executive Engineer
Kodigehalli Sub Division
Bruhat Bangalore Mahanagara Palike
Bangalore - 560 092

TEJUS CONSULTANTS

Consultant's Representative

TEJUS
CONSULTANTS

Project	Improvements to Roads and Drains at Yashodha Nagar,Jakkur Plantation and Surrounding Areas in Ward No 7 Thanisandra, Byatarayanapura Sub Divison.
Client	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	M/s Tejus Consultants
Contractor	M/S Ram and Company, Engineers & Contractors

AGGREGATE IMPACT VALUE
(IS: 2386 Part - 4)

Proposed Use	BC	**Date of Sampling**	**20.04.18**
Sample Location	At plant	**Date of Testing**	**20.04.18**

Sl. No.	Description		Test No. 1	Test No. 2	Test No. 3	Spec Limit (%)
1	Wt. of stone pieces (dry) passing IS Sieve 12.5mm but retained in IS sieve 10mm (gm)	(Wa)	355.00	385.00	410.00	
2	Wt. of the fraction retained in IS sieve 2.36mm after the impact test (gm)	(Wb)	275.00	296.00	321.00	
3	Wt. of the fraction passed in IS sieve 2.36mm after the impact test (gm)	(Wc)	80.00	89.00	89.00	
4	Aggregate Impact Value (%)	(Wc/Wa)*100	22.54	23.12	21.71	
5	Average Aggregate impact value	(%)	22.45			Max - 30 %

Remarks : Satisfactory / Not Satisfactory

Consultant's Representative

M/s. RAM & COMPANY

AE(W4) Assistant Executive Engineer
Kodigehalli Sub Division
Bruhat Bangalore Mahanagara Palike
Bangalore - 560 092

TEJUS CONSULTANTS

TEJUS
CONSULTANTS

Project	Improvements to Roads and Drains at Yashodha Nagar,Jakkur Plantation and Surrounding Areas in Ward No 7 Thanisandra, Byatarayanapura Sub Divison.
Client	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	M/s Tejus Consultants
Contractor	M/S Ram and Company, Engineers & Contractors

FLAKINESS AND ELONGATION INDICES (IS 2386, PART 1)

Type of Material	BC	**Proposed Use**	**BC**
Sample Location	At plant	**Date of Sampling**	**20.04.18**
		Date of Testing	**20.04.18**

Size of aggregate		**Flakiness Index**		**Elongation Index**	
Passing through IS sieve, mm	**Retained on IS sieve, mm**	**Total wt. of aggregate retained on sieves (A) gms.**	**Wt. of aggregate passing from Flakiness gauge (B) gms**	**Wt. of aggregate retained on Flakiness gauge (C) gms**	**Wt. of aggregate retained on Elongation gauge after retained on Flakiness gauge(D)gms**
63.0	50.0	0	0	0	0
50.0	40.0	0	0	0	0
40.0	31.5	0	0	0	0
31.5	25.0	0	0	0	0
25.0	20.0	0	0	0	0
20.0	16.0	654	77	577	76
16.0	12.5	1096	126	970	138
12.5	10.0	567	86	481	69
10.0	6.3	486	44	442	57
Total		**2803**	**333**	**2470**	**340**

Note: Minimum 200 Pcs should be taken on each fraction of test

Flakiness Index(%):	11.88
Elongation Index(%):	13.77
Combined FI+EL (%)	25.65

M/s. RAM & COMPANY

AE(W7) Assistant Executive Engineer
Kodigehalli Sub Division
Bruhat Bangalore Mahanagara Palike
Bangalore - 560 092

TEJUS CONSULTANTS

TEJUS
CONSULTANTS

Name of Work	:	Improvements to Roads and drains at Coffee Board Layout, Mariyannapalya and surrounding Areas in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	M/S Ram and Company, Engineers & Contractors
Date of Testing	:	20.04.18
Type of Mix	:	BC
Sample I/D	:	BC1

GRADATION FOR BC
(As per MORT&H 500-17,Grading-2)

Sample Location:	At plant	Date of Sampling:	20.04.18
		Date of testing:	20.04.18
Type of material & Purpose:	BC	Oven Dry Wt.(gms):	1200.0

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
19.00	0	0	0.00	100.00	100.00
13.20	100	100.0	8.33	91.67	90 - 100
9.50	98	198.0	16.50	83.50	70 - 88
4.75	220	418.0	34.83	65.17	53 - 71
2.360	110	528.0	44.00	56.00	42 - 58
1.180	120	648.0	54.00	46.00	34 - 48
0.600	110	758.0	63.17	36.83	26 - 38
0.300	124	882.0	73.50	26.50	18 - 28
0.150	120	1002.0	83.50	16.50	12 - 20
0.075	115	1117.0	93.08	6.92	4 - 10
Pan	83.0				
Total	1200.0				

M/s. R. PANT

AE (W)

Assistant Executive Engineer
Kodigehalli Sub Division
Bruhat Bangalore Mahanagara Palike
Bangalore-560 092

TEJUS CONSULTANTS

Consultant's Representative

Name of Work	:	Improvements to Roads and Drains at Yashodha Nagar,Jakkur Plantation and Surrounding Areas in Ward No 7 Thanisandra, Byatarayanapura Sub Divison.
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	M/S Ram and Company, Engineers & Contractors
Date of Testing	:	20.04.18
Type of Mix	:	BC
Sample I/D	:	BC1

GRADATION FOR BC
(As per MORT&H 500-17,Grading-2)

Sample Location:	At plant	Date of Sampling:	20.04.18
		Date of testing:	20.04.18
Type of material & Purpose:	BC	Oven Dry Wt.(gms):	1200.0

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
19.00	0	0	0.00	100.00	100.00
13.20	95	95.0	7.92	92.08	90 - 100
9.50	113	208.0	17.33	82.67	70 - 88
4.75	248	456.0	38.00	62.00	53 - 71
2.360	139	595.0	49.58	50.42	42 - 58
1.180	108	703.0	58.58	41.42	34 - 48
0.600	105	808.0	67.33	32.67	26 - 38
0.300	123	931.0	77.58	22.42	18 - 28
0.150	103	1034.0	86.17	13.83	12 - 20
0.075	96	1130.0	94.17	5.83	4 - 10
Pan	70.0				
Total	1200.0				

M/s. RAM & COMPANY

AE(W7)

Assistant Executive Engineer
Kodigehalli Sub Division
Bruhat Bangalore Mahanagara Palike
Bangalore - 560 092

TEJUS CONSULTANTS

Consultant's Representative

TEJUS
CONSULTANTS

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE MIX

Name of Work	:	Improvements to Roads and drains at Coffee Board Layout, Mariyannapalya and surrounding Areas in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	M/S Ram and Company, Engineers & Contractors
Date of Testing	:	21.04.18
Type of Mix	:	BC
Sample I/D	:	BC1

DETERMINATION OF BITUMEN CONTENT

Description	Trail 1	Trail 2
1. Weight of Mixture before extraction, g	950	850
2. Weight of Mixture after extraction, g	901	806
3. Weight of Bitumen	49	44
4. Weight of filter paper before extraction, g	2.00	2.00
5. Weight of filter paper after extraction, g	4.30	4.00
6. Weight of fines, g	2.30	2.00
7. Weight of Bitumen & fines	51.30	46.00
8. Bitumen content in %	5.40	5.41
9. Average Bitumen content in %	**5.41**	
10. Minimum Bitumen content in %	**5.40**	

GRADATION FOR BC AFTER EXTRACTION

(As per MORT&H 500-17,Grading-2)

Sample Location:	At site	Date of Sampling:	21.04.18
		Date of testing:	21.04.18
Type of material & Purpose:	BC	Oven Dry Wt.(gms):	901.0

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
19.00	0	0	0.00	100.00	100.00
13.20	86	86.0	9.54	90.46	90 - 100
9.50	118	204.0	22.64	77.36	70 - 88
4.75	142	346.0	38.40	61.60	53 - 71
2.360	111	457.0	50.72	49.28	42 - 58
1.180	100	557.0	61.82	38.18	34 - 48
0.600	78	635.0	70.48	29.52	26 - 38
0.300	72	707.0	78.47	21.53	18 - 28
0.150	62	769.0	85.35	14.65	12 - 20
0.075	80	849.0	94.23	5.77	4 - 10
Pan	52.0				
Total	901.0				

RAM & COMPANY

Consultant's Representative

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TEJUS
CONSULTANTS

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE MIX

Name of Work	:	Improvements to Roads and Drains at Yashodha Nagar,Jakkur Plantation and Surrounding Areas in Ward No 7 Thanisandra, Byatarayanapura Sub Divison.
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	M/S Ram and Company, Engineers & Contractors
Date of Testing	:	21.04.18
Type of Mix	:	BC
Sample I/D	:	BC1

DETERMINATION OF BITUMEN CONTENT

Description	Trail 1	Trail 2
1. Weight of Mixture before extraction, g	500	450
2. Weight of Mixture after extraction, g	474	426
3. Weight of Bitumen	26	24
4. Weight of filter paper before extraction, g	4.00	4.00
5. Weight of filter paper after extraction, g	5.00	4.30
6. Weight of fines, g	1.00	0.30
7. Weight of Bitumen & fines	27.00	24.30
8. Bitumen content in %	5.40	5.40
9. Average Bitumen content in %	**5.40**	
10. Minimum Bitumen content in %	**5.40**	

GRADATION FOR BC AFTER EXTRACTION

(As per MORT&H 500-17,Grading-2)

Sample Location:	At site	Date of Sampling:	21.04.18
		Date of testing:	21.04.18
Type of material & Purpose:	BC	Oven Dry Wt.(gms):	474.0

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
19.00	0	0	0.00	100.00	100.00
13.20	42	42.0	8.86	91.14	90 - 100
9.50	102	144.0	30.38	69.62	70 - 88
4.75	76	220.0	46.41	53.59	53 - 71
2.360	52	272.0	57.38	42.62	42 - 58
1.180	32	304.0	64.14	35.86	34 - 48
0.600	37	341.0	71.94	28.06	26 - 38
0.300	25	366.0	77.22	22.78	18 - 28
0.150	29	395.0	83.33	16.67	12 - 20
0.075	45	440.0	92.83	7.17	4 - 10
Pan	34.0				
Total	474.0				

RAM & COMPANY

A.E (Tech)

Assistant Executive Engineer
Kodigehalli Sub Division
Bruhat Bangalore Mahanagara Palike
Bangalore - 560 092

Consultant's Representative

TEJUS CONSULTANTS

TEJUS
CONSULTANTS

Name of Work	:	Improvements to Roads and Drains at Yashodha Nagar,Jakkur Plantation and Surrounding Areas in Ward No 7 Thanisandra, Byatarayanapura Sub Divison.
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	M/S Ram and Company, Engineers & Contractors
Date of Testing	:	21.04.18
Type of Mix	:	Tack coat
Sample I/D	:	1

DETERMINATION OF RATE OF SPREAD TACK COAT

Determination	Unit	Test No	
		1	2
Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
Area of Plate (a)	Sq.mtr	0.09	0.09
Initial Wt of empty Plate (b)	Kg	0.833	0.852
Final weight of plate after application of tack Coat (c)	Kg	0.856	0.875
Weight of tack Coat (d=c-b)	Kg	0.023	0.023
Rate of spread of tack coat	Kg/sq.m	0.256	0.256
Average	Kg/sq.m	0.256	
Specified Limit	Kg/sq.m	**0.250 Kg/sq.m**	

RAM & COMPANY

AE (W+)

Assistant Executive Engineer
Kodigehalli Sub Division
Bruhat Bangalore Mahanagara Palike
Bangalore - 560 092

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Consultant's Representative

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Name of Work	:	Improvements to Roads and Drains at Yashodha Nagar,Jakkur Plantation and Surrounding Areas in Ward No 7 Thanisandra, Byatarayanapura Sub Divison.
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	M/S Ram and Company, Engineers & Contractors
Date of Testing	:	21.04.18
Type of Mix	:	Tack coat
Sample I/D	:	2

DETERMINATION OF RATE OF SPREAD TACK COAT

Determination	**Unit**	**Test No**	
		1	**2**
Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
Area of Plate (a)	Sq.mtr	0.09	0.09
Initial Wt of empty Plate (b)	Kg	0.786	0.755
Final weight of plate after application of tack Coat (c)	Kg	0.809	0.783
Weight of tack Coat (d=c-b)	Kg	0.023	0.028
Rate of spread of tack coat	Kg/sq.m	0.256	0.311
Average	Kg/sq.m	0.283	
Specified Limit	Kg/sq.m	**0.250 Kg/sq.m**	

M/s. RAM & COMPANY

AE(W-I)

Assistant Executive Engineer
Bruhat Bangalore Mahanagara Palike

Consultant's Representative

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